

Title (en)
CONVERTERS FOR WIND TURBINE GENERATORS

Title (de)
UMSETZER FÜR WINDTURBINENGENERATOREN

Title (fr)
CONVERTISSEURS DESTINÉS À DES GÉNÉRATEURS ÉOLIENS

Publication
EP 3058636 A1 20160824 (EN)

Application
EP 14786792 A 20141014

Priority
• DK PA201370597 A 20131018
• DK 2014050331 W 20141014

Abstract (en)
[origin: WO2015055211A1] A wind turbine generator 1 supplies three-phase a.c. current of variable voltage and variable frequency to two pairs of rectifiers 4a, 4b and 4c, 4d which generate respective d.c. outputs connected to positive, negative and neutral d.c. conductors 6, 7, 8. The outputs from each pair of rectifiers are connected together, and the outputs from the two pairs are connected in series to create a high-voltage d.c. output. Inverters 10a, 10b, 10c, 10d then convert the d.c. power to a.c. at a fixed frequency and voltage suitable for connection to the mains grid. To reduce the effect of common-mode noise, a capacitor is connected between the 1 neutral conductor7 and earth, and a respective filter circuit 30 is connected between each of the a.c. outputs of the inverters 10a, 10b, 10c, 10d and earth. To reduce the effect of voltage surges during lightning, a surge protection device is also connected between the neutral d.c. conductor 7 and earth. Any imbalance in the current in the positive and negative conductors 6, 8 is compensated by detecting the presence of current flowing in the neutral conductor 7. Power supplied to auxiliary circuits from the output of one of the inverters, e.g. 10a, of the wind turbine is measured, and any resulting imbalance between the current in the positive and negative conductors is compensated. In the event of an earth-leakage fault in the conductors connecting the a.c. outputs of the inverters to the grid, when isolated, isolation detection relays 25 are provided.

IPC 8 full level
H02J 3/28 (2006.01); **F03D 9/00** (2016.01); **G01R 19/165** (2006.01); **H02H 7/12** (2006.01); **H02H 7/26** (2006.01); **H02J 3/38** (2006.01); **H02K 19/34** (2006.01); **H02K 21/48** (2006.01); **H02M 1/12** (2006.01); **H02M 7/49** (2007.01)

CPC (source: EP US)
F03D 9/255 (2017.01 - EP US); **H02H 3/105** (2013.01 - EP US); **H02H 7/122** (2013.01 - EP US); **H02J 3/28** (2013.01 - EP US); **H02J 3/381** (2013.01 - EP US); **H02M 1/12** (2013.01 - US); **H02M 1/32** (2013.01 - US); **H02M 5/42** (2013.01 - US); **H02M 5/4585** (2013.01 - EP US); **H02M 7/219** (2013.01 - EP US); **H02M 7/493** (2013.01 - EP US); **H03H 7/0107** (2013.01 - US); **G01R 31/40** (2013.01 - EP US); **H02J 2300/28** (2020.01 - EP US); **H02M 1/0077** (2021.05 - EP US); **H02M 1/123** (2021.05 - EP US); **H02M 7/23** (2013.01 - EP US); **Y02E 10/72** (2013.01 - EP US); **Y02E 10/76** (2013.01 - EP US); **Y02E 70/30** (2013.01 - US)

Citation (search report)
See references of WO 2015055211A1

Citation (examination)
• US 2013197704 A1 20130801 - PAN JIUPING [US], et al
• EP 2528184 A1 20121128 - SIEMENS AG [DE]
• CN 202395465 U 20120822 - XINJIANG QUANXIN LIANGSHI TECHNOLOGY CO LTD
• CN 101640423 A 20100203 - UNIV XI AN JIAOTONG
• US 2010014338 A1 20100121 - JACOBSON BJOERN [SE], et al
• JP 2012178938 A 20120913 - HITACHI LTD

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
WO 2015055211 A1 20150423; CN 105637724 A 20160601; EP 3058636 A1 20160824; US 10483865 B2 20191119; US 2016241153 A1 20160818

DOCDB simple family (application)
DK 2014050331 W 20141014; CN 201480057157 A 20141014; EP 14786792 A 20141014; US 201415030316 A 20141014